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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/799,344	03/11/2004	Michael Craig Marshall	4314.77US01	6245

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EXAMINER	
CHUNG, EUN HEE	
ART UNIT	**PAPER NUMBER**
2123	

DATE MAILED: 11/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/799,344	MARSHALL, MICHAEL CRAIG	
	Examiner	Art Unit	
	Eun H. Chung	2123	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *11 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☒ Claim(s) *5* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-7 are presented for examination.

Information Disclosure Statement

2. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Specification

3. The abstract of the disclosure is objected to because the abstract exceeds 150 words. The length of the abstract should be limited to 150 words. Correction is required. See MPEP § 608.01(b).

Claim Objections

4. Claim 5 is objected to because of the following informalities:

The phrase "the two corresponding physical object" in line 2 would be better as "two corresponding physical object" to avoid any possible antecedent issues.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claims 1-4 and 6-7are rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. (US Patent No. 5,338,198), in view of Hultgren et al. (US Pub No. 2004/0017369).

Wu et al. teaches (Claims 1 and 6) a system and method for generating an electronic model for a dental impression having a common coordinate system (Col. 4 lines 56-67), the system comprising:

(Claim 1) two scanning apparatus (Fig. 1 and Fig. 2) for positioning physical objects within a scanning device when generating an electronic model corresponding to each of the physical objects (Col. 4 lines 56-67, Col. 5 lines 26-54);

a data processing system for processing the electronic models corresponding to each of the physical objects (Col. 6 lines 15-22, Col. 6 lines 60-68);

wherein the scanning apparatus comprising a scanning base plate module (Fig. 1 and Fig. 2) for coupling the scanning apparatus to the scanning device (Fig. 1 and Fig 2) and a physical model plate module to coupling the physical object to the scanning base plate module within a coordinate system of the scanning device (Fig. 1-4, Col. 5 lines 26-54, Col. 6 lines 47-59);

(Claim 6) mounting physical models onto corresponding scanning apparatus, the scanning apparatus positions the physical models within a coordinate system of a scanning device (Fig. 1-4, Col. 6 lines 11-14);

generating an electronic model for each physical model, the electronic models (Col. 5 lines 24-54);

positioning each of the scanning apparatus into a desired position in which the physical models are positioned relative to each other as the objects corresponding to the physical models interact with each other to generate a composite scanning apparatus (Fig. 1-4, Col. 6 lines 11-14);

scanning a reference point on one or more scanning apparatus within the combined scanning apparatus that are not coupled to the scanning device (Fig. 2, Col. 5 lines 25-40, Col. 6 lines 47-59); and

transforming the electronic models corresponding to the objects having scanning apparatus not coupled to the scanning device to generate a composite electronic model in a common coordinate system (Col. 6 lines 15-22, Col. 6 lines 47-68, Col. 7 lines 1-18);

(Claim 2) wherein the scanning apparatus also comprises a reference point item (The pivot number, Fig. 4) used to locate a known position on the scanning apparatus to perform data

processing operations associated with transforming position location data into the common coordinate system (Col. 5 lines 25-40, Col. 6 lines 47-59);

(Claim 3) wherein the scanning base plate module comprises an x-axis alignment channel and y-axis alignment channel (Col. 5 lines 25-54);

the physical model plate module comprises a plurality of alignment position spheres (Fig. 1-4), the plurality of alignment spheres are coupled to the x-axis alignment channel and the y-axis alignment channel to position the physical model plate module at a known location relative to the scanning base plate module (Col. 5 lines 25-65, Col . 6 lines 23-59);

(Claim 4) wherein the reference point item corresponds to one of the plurality of alignment spheres (Fig. 4); and

(Claim 7) wherein the method further comprises generating a position transformation vector using the scanned reference point data, the position transformation vector being used to transform the electronic models into a common coordinate system (Col. 5 lines 25-65, Col. 6 lines 15-22, Col. 6 lines 47-68, Col. 7 lines 1-18).

Wu et al. fails to teach (Claim 1) polygonal mesh representations of the physical objects within a common coordinate system.

Hultgren et al. teaches (Claims 1 and 6) polygonal mesh representations of the physical objects within a common coordinate system (Fig. 4, Paragraph [0037]).

Wu et al. and Hultgren et al. are analogous art because they are both related to generating electronic model of a dental impression.

Therefore, it would have been obvious to one of ordinary skill in the art of at the time the invention was made to include polygonal mesh representations of Hultgren et al., with the

method of generating electronic model of a dental impression of Wu et al. because Hultgren et al. teaches advantages of system that generates an electronic model of a dental impression, and the system captures image representations of physical objects accurately in a form that is inexpensive to operate (Paragraph [0006]).

8. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Wu et al. (US Patent No. 5,338,198), in view of Hultgren et al. (US Pub No. 2004/0017369), further in view of Taub et al. (US Pub No. 2005/0250075).

Wu et al. modified by Hultgren et al. teaches most all of the instant invention as applied to claims 1-4 and 6-7 above.

Wu et al. modified by Hultgren et al. teaches wherein the two scanning apparatus are combined into a composite scanning apparatus (Fig. 1-4) one of the two scanning apparatus being coupled to the scanning device (Fig. 1, Col. 5 lines 25-68) and the other of the two scanning apparatus being position within space of the scanning device according to the common coordinate system (Fig 1 and 2).

Wu et al. modified by Hultgren et al. fails to teach the two corresponding physical objects are positions relative to each other at a desired position (Fig. 4, Paragraph [0030] and [0031]).

Wu et al. modified by Hultgren et al. and Taub et al. are analogous art because they are both related to an electronic model of dental impression.

Therefore, it would have been obvious to one of ordinary skill in the art of at the time the invention was made to include the positioning of physical objections of Taub et al., with the

method of generating electronic model of a dental impression of Wu et al. modified by Hultgren et al. to capture image representations of physical objects accurately in a form that is inexpensive to operate (Hultgren et al.: Paragraph [0006]).

Conclusion

9. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Durbin et al. disclose(s) a method for imaging and modeling dental structures (US Patent No. 6,364,660).

Jordan et al. disclose(s) methods for use in dental articulation (US Patent No. 6,152,731).

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eun H. Chung whose telephone number is 571-272-2164. The examiner can normally be reached on 8:30am-5:00pm Monday to Friday.
If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Rodriguez can be reached on 571-272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

EHC

11/9/07

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